CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification									DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**						R-1 ITEM NOMENCLATURE PE 0603207N Air/Ocean Tactical Applications				
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Total PE Cost			**31.937**	**22.575**	**24.431**	**25.271**	**30.705**	**30.148**	**31.073**	**Continuing**	**Continuing**
2341 METOC Data Acquisition			**9.421**	**7.808**	**8.548**	**8.786**	**10.625**	**10.818**	**11.020**	**Continuing**	**Continuing**
2342 METOC Data Assimilation and Modeling			**12.107**	**7.142**	**7.927**	**8.188**	**9.872**	**10.013**	**10.766**	**Continuing**	**Continuing**
2343 Tactical METOC Applications			**7.820**	**6.477**	**6.695**	**6.998**	**8.635**	**8.811**	**8.991**	**Continuing**	**Continuing**
2344 Precise Timing and Astrometry			**1.399**	**1.148**	**1.261**	**1.299**	**1.573**	**0.506**	**0.296**	**Continuing**	**Continuing**
9168 Prototype Regional Forecast Hub			**1.190**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**1.190**
Quantity of RDT&E Articles											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The Air Ocean Tactical Applications (AOTA) Program Element is aligned with Navy's Sea Power 21 concept to enhance the future mission capabilities of the Navy-Marine Corps Team. New state-of-the art Government and commercial technologies are identified, transitioned, demonstrated and then integrated into FORCEnet-related programs of record that determine in realtime and near-realtime the operational effects of the physical environment on the performance of combat forces and their new and emerging platforms, sensors, systems and munitions. The AOTA program element focuses on sensing and characterizing the littoral and deep-strike battlespace in the context of regional conflicts and crisis response scenarios. Projects in this program element transition state-of-the art sensing, modeling and decision aid technologies from Government and commercial sources. Unique project development efforts include atmospheric and oceanographic data assimilation techniques, forecast models, data base management systems and associated software for use in mainframe, desktop and laptop computers. Global Geospatial Information and Services efforts within this program address the bathymetric and gravimetric needs of the Navy. Also developed are algorithms to process new satellite sensor data for integration into Navy and Marine Corps decision support systems and for display as part of the common operational and tactical pictures. In addition, the projects provide for demonstration and validation of specialized atmospheric and oceanographic instrumentation and measurement techniques, new sensors, communications and interfaces. Included are new capabilities to assess, predict and enhance the performance of current and emerging undersea warfare and mine warfare weapons systems. AOTA capabilities are designed to support the last versions of the Global Command and Control System (GCCS), the new Joint Command and Control (JC2) system, and specific unit-level combat systems. This program also develops representations of the physical environment for incorporation into Navy and Marine Corps warfare trainers and simulations. Finally, this program develops technological upgrades for the U.S. Naval Observatory's Master Clock system to keep pace with the demands of modern military communications, cryptographic, intelligence and targeting systems; develops near-real-time earth orientation predictions; develops very precise determination of positions of both faint and bright stars; and supports satellite tracking and space debris studies.

(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under DEMONSTRATION & VALIDATION because it develops and integrates systems for experimental test related to specific ship or aircraft applications. A congressional plus up for Prototype Regional Forecast (PRF) Hub is provided for FY03.

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications					PROJECT NUMBER AND NAME 2341 METOC Data Acquisition					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost			**9.421**	**7.808**	**8.548**	**8.786**	**10.625**	**10.818**	**11.020**	**Continuing**	**Continuing**
RDT&E Articles Qty											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The major thrust of the meteorology and oceanography (METOC) Data Acquisition Project is to provide future mission capabilities for warfighters to sense and monitor the physical environment within the battlespace. New sensing technologies are identified and the most promising candidates are transitioned from the Government's and Commercial Industry's technology base to this project. These new sensing technologies are then demonstrated, validated and integrate into operational programs of record for use by warfighters. These new sensing capabilities provide timely and accurate METOC data and products to Operational and Tactical level of war commanders. As the emphasis on Naval Warfare has evolved from blue water operations to the littoral and hinterland battlespace, METOC data requirements have likewise evolved. The littoral and hinterland regions are extremely dynamic and complex, characterized by strong and highly variable oceanographic and atmospheric conditions. As a result, the need to accurately characterize these parameters is more crucial than ever in planning and executing Amphibious Warfare, Mine Warfare, Special Operations, Anti-Submarine Warfare, and Strike Warfare operations. Routinely available data sources, such as climatology, oceanographic and meteorological numerical models, and satellite remote sensing are inadequate to support these warfare areas in the littoral and hinterland regions. Current operational sensors, such as the standard balloon launched radiosonde, are deployed from platforms that are frequently located great distances from the area of interest. The principal challenge is to provide a means for the collection and dissemination of METOC data in highly variable and dynamic littoral environmental conditions or in denied, remote or inaccessible areas over extended periods of time. The principal goals of this project are to: 1) Provide the means to rapidly and automatically acquire a broad array of METOC data using both off-board and on-board sensors; 2) provide an on-scene assessment capability for the tactical commander; 3) provide the tactical commander with real-time METOC data and products for operational use; 4) demonstrate and validate the use of tactical workstations and desktop computers for processing and display of METOC data and products using latest networking technologies; 5) demonstrate and validate techniques which employ data compression, connectivity and interface technologies to ingest, store, process, distribute and display these METOC data and products; 6) develop new charting and bathymetric survey techniques necessary to reduce the existing 300 ship year shortfall in coastal hydrographic survey requirements; and, 7) develop an expanded database for predictive METOC models in areas of potential interest.

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2341 METOC Data Acquisition

(U) B. Accomplishments/Planned Program

UAV Sensors	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.230	0.972	1.263
RDT&E Articles Quantity			

FY03 - Continued developments of prototype sensor suites for Unmanned Air Vehicles (UAV). Delivered prototype sensor package.
FY04 - Complete developments and testing of prototype sensor suites for UAVs. Continue development of miniaturized UAV sensor suites for mini/micro UAV platforms.
FY05 - Continue development of miniaturized sensor suites for mini/micro UAV platforms.

Acoustic Data Inversion	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.590	1.241	1.270
RDT&E Articles Quantity			

FY03 - Continued assessments of temporal and spatial variability of littoral environments for acoustic data inversion.
FY04 - Continue assessments of temporal and spatial variability of littoral environments for acoustic data inversion. Deliver Version 1.0 of the Geophysical Acoustic Inversion Toolkit (GAIT)
FY05 - Complete assessments of temporal and spatial variability of littoral environments for acoustic data inversion. Deliver GAIT Version 2.0. Continue development of advanced acoustic data inversion techniques incorporating Expert System technology.

Ambient Noise Data	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.340	1.071	1.230
RDT&E Articles Quantity			

FY03 - Continued development of advanced techniques to acquire and manage ambient noise data.
FY04 - Continue development of advanced techniques to acquire and manage ambient noise data. Deliver Dynamic Ambient Noise Prediction System (DAPS) V1.1.
FY05 - Continue development of advanced techniques to acquire and manage ambient noise data. Deliver DAPS V2.0.

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2341 METOC Data Acquisition

(U) B. Accomplishments/Planned Program

Autonomous Clandestine Sensors	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.292	1.062	1.320
RDT&E Articles Quantity			

FY03 - Continued development of autonomous clandestine sensors for measurements in denied areas.
FY04 - Complete development of autonomous clandestine sensors for measurements in denied areas. Deliver web enabled prototype.
FY05 - Continue development of next-generation autonomous clandestine sensors for data acquisition in denied areas. Deliver final version of web enabled system.

Data Connectivity	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.320	1.071	1.225
RDT&E Articles Quantity			

FY03 - Continued development of data connectivity with GCCS/M and Joint C4ISR. Delivered prototype Tactical Environmental Data Server (TEDServices).
FY04 - Complete development of data connectivity with GCCS/M. Deliver TEDServices V1.0 software. Continue development improvements.
FY05 - Complete development of data connectivity with Joint C4ISR. Deliver TEDServices V2.0 prototype. Continue development of data connectivity methods for next-generation command and control systems.

Acoustic Data Acquisition	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.499	1.493	1.144
RDT&E Articles Quantity			

FY03 - Completed development of next-generation acoustic data acquisition techniques. Delivered Precision Undersea Mapper (PUMA) data decimation and fusion software V1.0. Continued development of advanced technology through the sensor data acquisition techniques.
FY04 - Continue development of advanced technology through the sensor data acquisition techniques. Deliver AQS-20 prototype software and PUMA V2.0 prototype software.
FY05 - Complete development of advanced technology through the sensor data acquisition techniques. Deliver AQS-20 V1.0 and PUMA V2.0 software. Continue spiral development of expert system acoustic data acquisistion techniques to directly ingest data obtained from tactical sensors.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2341 METOC Data Acquisition

(U) B. Accomplishments/Planned Program

DMAP	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.150	0.898	1.096
RDT&E Articles Quantity			

FY03 - Continued information management and DMAP functions. Delivered Navy-unique requirements to NIMA.
FY04 - Continue information management and DMAP functions. Annual delivery of Navy-unique requirements to NIMA.
FY05 - Continue information management and DMAP functions. Annual delivery of Navy-unique requirements to NIMA.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000
RDT&E Articles Quantity			

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.000	0.000	0.000
RDT&E Articles Quantity			

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CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Application	2341 METOC Data Acquisition

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget	9.823	7.896	8.627
FY05 President's Budget	9.421	7.808	8.548
Total Adjustments	-0.402	-0.088	-0.079
Summary of Adjustments			
SBIR	-0.124		
MANPOWER			-0.040
NWCF Rates - NRL Rates			-0.006
NWCF Rates - NSWC Rates			-0.003
FY 2003 Update	-0.278		
Section 8094: Management Improvements		-0.021	
Sec. 8126 Efficiencies/Revised Econ Assumptions		-0.067	
WCF - R&D - NRL			-0.015
Rates - NSWC			0.001
Rates - NRL			0.012
Inflation			-0.023
Non purchase inflation			-0.005
Subtotal	-0.402	-0.088	-0.079

(U) Schedule:

Not applicable.

(U) Technical:

Not applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2341 METOC Data Acquisition

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

RELATED RDT&E: PE 0604218N, Air/Ocean Equipment Engineering - AN/SMQ-11 satellite receiver/recorder system engineering to receive data from DMSP onboard selected ships and shore sites.

(U) E. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies are to support the meteorology and oceanography (METOC) Data Acquisition Project to develop, demonstrate, and validate METOC data collection methods and sensors, and to evolve the ability to provide timely and accurate METOC data and products to the Tactical Commander, all with management oversight by SPAWAR Headquarters.

(U) F. MAJOR PERFORMERS:

N/A

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2341 METOC Data Acquisition						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	NRL		3.208	N/A	3.870	N/A	4.426	N/A	CONT	CONT	
	WX	NAWC-AD Lake		0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	CP	ARL/APL		0.218	N/A	0.350	N/A	0.400	N/A	CONT	CONT	
	WX	NSWC		0.400	N/A	0.275	N/A	0.300	N/A	CONT	CONT	
	CP	New Age		1.095	N/A	0.650	N/A	0.705	N/A	CONT	CONT	
	CP	PSI/R.L.Phillips		0.560	N/A	0.450	N/A	0.500	N/A	CONT	CONT	
	CP	Neptune		0.350	N/A	0.375	N/A	0.400	N/A	CONT	CONT	
	WX	FNMOC		0.516	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	N/A	MISC		3.074	N/A	1.708	N/A	1.682	N/A	CONT	CONT	
											0.000	
											0.000	
Subtotal Software Development			0.000	9.421		7.678		8.413		CONT	CONT	
Remarks:												
Systems Engineering	CP	SSA	1.395	0.000	N/A	0.130	N/A	0.135	N/A	CONT	CONT	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			1.395	0.000		0.130		0.135		CONT	CONT	
Remarks:												

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CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2341 METOC Data Acquisition						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			1.395	9.421		7.808		8.548		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

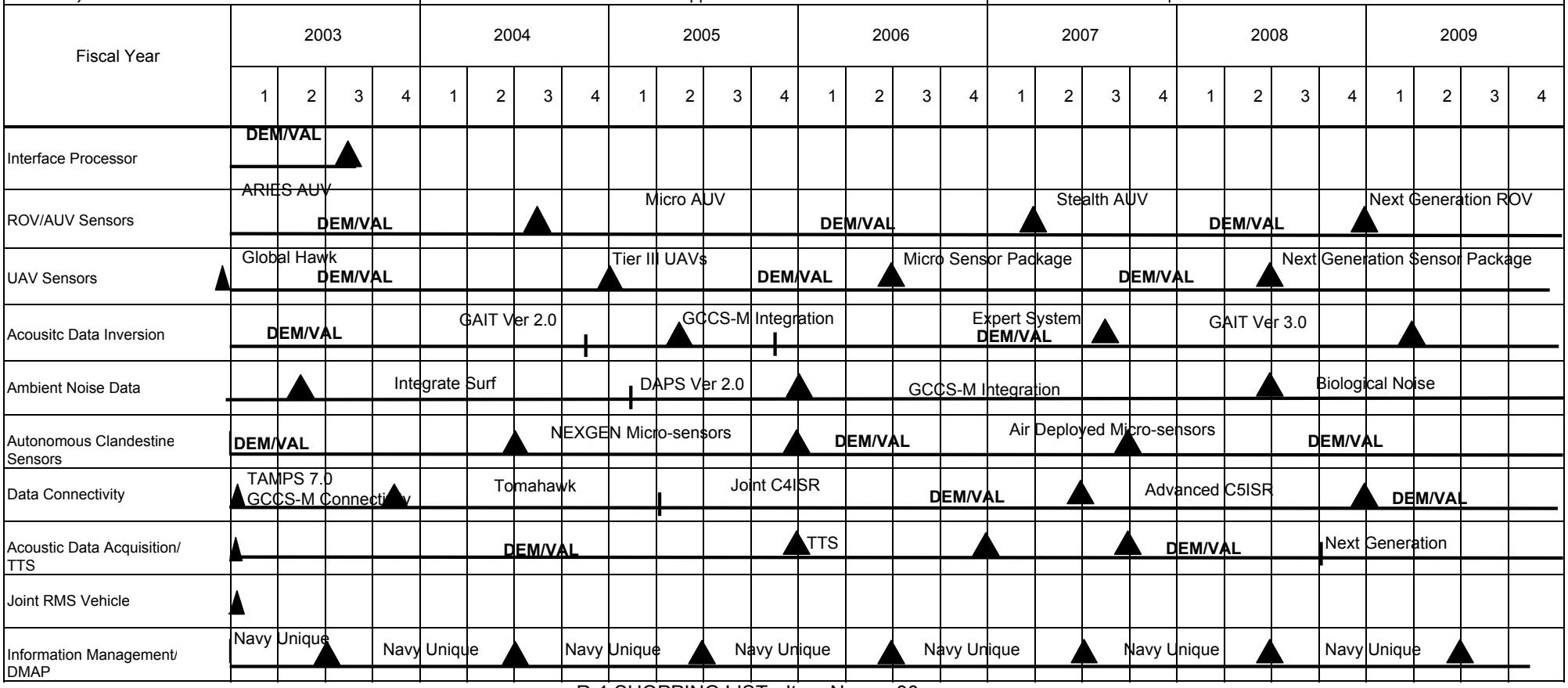
CLASSIFICATION:

EXHIBIT R4, Schedule Profile | DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: PE 0603207N Air/Ocean Tactical Applications

PROJECT NUMBER AND NAME: 2341 METOC Data Acquisition



R-1 SHOPPING LIST - Item No. 30

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2341 METOC Data Acquisition			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Interface Processor	3Q						
ROV/AUV Sensors		3Q			1Q	4Q	
UAV Sensors		4Q		2Q		2Q	
Acoustic Data Inversion			2Q		3Q		1Q
Ambient Noise Data	2Q		4Q			2Q	
Autonomous Clandestine Sensors		2Q	4Q		3Q		
Data Connectivity	4Q				2Q	4Q	
Acoustic Data Acquisition/TTS			4Q	4Q	3Q		
Joint RMS Vehicle							
DMAP	2Q	2Q	2Q	2Q	2Q	2Q	2Q

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications					PROJECT NUMBER AND NAME 2342 METOC Data Assimilation and Modeling					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**0.000**		**12.107**	**7.142**	**7.927**	**8.188**	**9.872**	**10.013**	**10.766**	**Continuing**	**Continuing**
RDT&E Articles Qty											

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The meteorological and oceanographic (METOC) Data Assimilation Project is a multi-faceted project that provides future mission capabilities for warfighters to characterize the physical environment within their battlespace. This project includes: 1) development, demonstration and validation of atmospheric and oceanographic data assimilation techniques, forecast models, database management systems, and associated software for use in both mainframe and tactical scale computers. Included are numerical oceanographic and atmospheric models for the Large Scale Computers at the Navy Fleet Numerical Meteorology and Oceanography Center, Monterey, CA and the Naval Oceanographic Office, Stennis Space Center, MS. These models, combined with a global communications network for data acquisition and distribution, form a prediction system which provides METOC data and products necessary to support naval operations worldwide in virtually every mission area; 2) other models, which focus on ocean thermal structure and circulation, and surf and tide prediction; 3) techniques to process and manage satellite remotely-sensed environmental data at Oceanography Centers ashore and on ships equipped with the AN/SMQ-11 satellite receiver/recorder. These techniques allow for the integration and tactical application of significant oceanographic and atmospheric data derived from satellite borne sensors. Included are techniques and algorithms for the processing of sensor measurements, conversion of raw signal data to geophysical information, analysis schemes encompassing Artificial Intelligence and Expert Systems, and other satellite data applications and field validation of end products; and, 4) a family of acoustic system performance models beginning with active system models and databases in the low-, mid-, and high-frequency regimes and culminating with high fidelity simulation products. As weapons and sensors become more sophisticated and complex, the marine environment has an increasingly significant impact on system performance. Operational limitations induced by the ocean and atmosphere must be understood, and the resulting constraints on mission effectiveness and system employment minimized. Hence, the operating forces require more accurate worldwide forecasts of METOC conditions with increased temporal and spatial resolution. An additional challenge is posed by the emergence of new satellite sensors, which are continually adding new sources of disparate data types. In order to fully exploit this dynamic and massive volume of data, modern data base management systems (DBMS) are required, and must be tailored for individual computer configurations. Improved representation of smaller-scale phenomena, particularly in the littoral, is also an important consideration.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2342 METOC Data Assimilation and Modeling

(U) B. Accomplishments/Planned Program

Modeling and Simulation	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.360	0.715	0.920
RDT&E Articles Quantity			

FY03 - Continued modeling and simulation of atmospheric and ocean environmental effects on Navy systems. Delivered ocean volume data to DoD M&S community.
FY04 - Continue modeling and simulation of atmospheric and ocean environmental effects on Navy systems. Deliver atmospheric volume data to DoD M&S community. Continue spiral development of improved ocean volume data.
FY05 - Continue modeling and simulation of atmospheric and ocean environmental effects on Navy systems. Deliver Navy data inputs to support establishment of the Joint M&S Center (USAF Combat Climatology Center).

Coupled Data Assimilation	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.280	0.320	0.440
RDT&E Articles Quantity			

FY03 - Continued development of variational techniques for coupled assimilations. Delivered Naval Data Assimilation Sytem (NAVDAS) V1.0.
FY04 - Complete development of variational techniques for coupled assimilations. Continue spiral development of NAVDAS V2.0 prototype and coupled data assimilation techniques incorporating Artificial Intelligence.
FY05 - Continue development of coupled assimilation techniques incorporating Artificial Intelligence. Deliver NAVDAS V2.0.

Fleet Exercises	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.650	0.524	0.530
RDT&E Articles Quantity			

FY03 - Participated in selected Naval Exercises and delivered post exercise strawman and final reports.
FY04 - Participate in selected Naval Exercises and deliver post exercise strawman and final reports.
FY05 - Participate in selected Naval Exercises and deliver post exercise strawman and final reports.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2342 METOC Data Assimilation and Modeling

(U) B. Accomplishments/Planned Program

High-Resolution Forecast Models	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.446	0.681	0.824
RDT&E Articles Quantity			

FY03 - Continued development of next generation high-resolution coupled air/ocean forecast models. Delivered Coupled Ocean-Atmospheric Mesoscale Prediction System (COAMPS) V3.0.
FY04 - Continue development of next generation high-resolution coupled air/ocean forecast models. Deliver Message Passage Interface (MPI)/ Distributed Shared Memory (DSM) version of COAMPS.
FY05 - Continue development of next generation high-resolution coupled air/ocean forecast models. Deliver prototype advanced land-surface modeling system for integration into COAMPS.

Basin Scale Ocean Models	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.363	1.100	0.851
RDT&E Articles Quantity			

FY03 - Continued development of coastal and enclosed basin tactical scale oceanographic models. Delivered prototype degree East Asian Sea (EAS) model.
FY04 - Continue development of coastal and enclosed basin tactical scale oceanographic models. Complete the validation/transition of the EAS model
FY05 - Complete development of coastal and enclosed basin tactical scale oceanographic models. Deliver prototype Adriadic Sea model. Continue development of coupled air/ocean models for selected geographical locations in response to emergent requirements.

Data Assimilation	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.120	0.327	0.410
RDT&E Articles Quantity			

FY03 - Continued development of new capabilities to assimilate and quality control METOC data from satellite sensors and conventional data sources. Delivered dust detection and enhancement software using MODIS and SeaWiFS digital data.
FY04 - Continue development of new capabilities to assimilate and quality control METOC data from satellite sensors and conventional data sources. Transition FMQ-17 modules
FY05 - Continue development of new capabilities to assimilate and quality control METOC data from satellite sensors and conventional data sources. Transition applications

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2342 METOC Data Assimilation and Modeling

(U) B. Accomplishments/Planned Program

Automated Objective Processing	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.493	0.694	0.976
RDT&E Articles Quantity			

FY03 - Continued development of techniques for bathymetry and surf zone and high-resolution micro-topography algorithms and automated objective processing in the littoral. Delivered report from the Naval Coastal Ocean Model (NCOM) validation tests.
FY04 - Complete development of techniques for bathymetry and surf zone and high-resolution micro-topography algorithms and automated objective processing in the littoral. Deliver performance metrics for the baseline global NCOM prediction system. Continue development of assimilation methods for high-resolution surf zone bathymetry into coupled air/ocean forecast models and automated objective preocessing in the littoral.
FY05 - Continue development of assimilation methods for high-resolution surf zone bathymetry into coupled air/ocean forecast models. Deliver data assimilation upgrades.

Tide/Surf Data Visualization	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.675	0.350	0.370
RDT&E Articles Quantity			

FY03 - Continued development of next-generation tide and surf models. Completed OPTEST of PCTides.
FY04 - Continue development of next-generation tide and surf models. Deliver UNIX version of PCTides. Incorporate TOPEX/Poseidon data into Surf Model.
FY05 - Continue development of next-generation tide and surf models. Deliver documentation for AMOP Transition.

NEXGEN Acoustive Models	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.260	0.978	1.170
RDT&E Articles Quantity			

FY03 - Continued development of next-generation active and passive acoustic models. Transitioned the prototype Scalable Tactical Propagation Loss Engine (STAPLE) for tactical decision aids and netcentric applications.
FY04 - Continue development of next-generation active and passive acoustic models. Upgrade to new OAML models for PE and CASS/GRAB. Semi-Empirical Surface Scattering Strength Algorithm
FY05 - Continue development of next-generation active and passive acoustic models. Incorporate DBDBV 5.0 APIs and database, upgrade NAUTILUS run options. Deliver OAML Version of SESSS.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2342 METOC Data Assimilation and Modeling

(U) B. Accomplishments/Planned Program

Shallow Water Acoustics	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.245	0.838	0.750
RDT&E Articles Quantity			

FY03 - Continued developments of mid-frequency bottom loss/bottom scatter models and databases for shallow water environments. Delivered SWDG R&A tools to incorporate OMAL-approved SPP models to provide Signal Excess calculations necessary to support Detection Opportunity Analysis.
FY04 - Continue developments of mid-frequency bottom loss/bottom scatter models and databases for shallow water environments. Complete assessment of CASS and ASPM and deliver final report.
FY05 - Continue developments of mid-frequency bottom loss/bottom scatter models and databases for shallow water environments. Integrate multistatics modeling and performance prediction techniques.

Fleet Applications and Data V&V	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.215	0.615	0.686
RDT&E Articles Quantity			

FY03 - Continued the verification and validation of products and data assimilation techniques developed for fleet applications. Delivered Annual Report.
FY04 - Continue the verification and validation of products and data assimilation techniques developed for fleet applications. Deliver Annual Report.
FY05 - Continue the verification and validation of products and data assimilation techniques developed for fleet applications. Deliver Annual Report.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Application	2342 METOC Data Assimilation and Modeling

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget	12.479	7.222	7.966
FY05 President's Budget	12.107	7.142	7.927
Total Adjustments	(0.372)	(0.080)	(0.039)
Summary of Adjustments			
66556 SBIR	(0.117)		
NWCF Rates - NRL Rates			(0.009)
NWCF Rates - NSWC Rates			(0.001)
FY 2003 Update	(0.255)		
Section 8094: Management Improvements		(0.019)	
Sec. 8126 Efficiencies/Revised Econ Assumptions		(0.061)	
WCF - R&D - NAWC			0.001
WCF - R&D - NRL			(0.021)
Rates - NSWC			0.001
Rates - NRL			0.016
Inflation			(0.021)
Non purchase inflation			(0.005)
Subtotal	(0.372)	(0.080)	(0.039)

(U) Schedule:

Not applicable.

(U) Technical:

Not applicable.

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2342 METOC Data Assimilation and Modeling

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

Not applicable.

(U) E. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies to support the meteorological and oceanographic (METOC) Data Assimilation Project which is a multi-faceted program which includes: 1) development, demonstration and validation of atmospheric and oceanographic data assimilation techniques, forecast models, database management systems, and associated software for use in both mainframe and tactical scale computers; 2) other models, which focus on ocean thermal structure and circulation, and surf and tide prediction; 3) techniques to process and manage satellite remotely-sensed environmental data at Oceanography Centers ashore and on ships equipped with the AN/SMQ-11 satellite receiver/recorder; and, 4) a family of acoustic system performance models beginning with active system models and databases in the low-, mid-, and high-frequency regimes and culminating with high fidelity simulation products, all with management oversight by SPAWAR.

(U) F. MAJOR PERFORMERS:

N/A

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2342 METOC Data Assimilation and Modeling						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	NRL		9.319	N/A	5.574	N/A	6.324	N/A	CONT	CONT	
	WX	NAWC-WD, Pax		0.000	N/A	0.185	N/A	0.208	N/A	CONT	CONT	
	PD	APL		0.487	N/A	0.208	N/A	0.290	N/A	CONT	CONT	
	Grant	Univ. S. Miss.		0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
	CP	Neptune		0.325	N/A	0.295	N/A	0.325	N/A	CONT	CONT	
	CP	New Age		0.000	N/A	0.300	N/A	0.325	N/A	CONT	CONT	
	N/A	MISC		1.976	N/A	0.580	N/A	0.455	N/A	CONT	CONT	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Software Development			0.000	12.107		7.142		7.927		CONT	CONT	
Remarks:												
Systems Engineering	CP	SSA	0.295	0.000	N/A	0.000	N/A	0.000	N/A	CONT	CONT	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.295	0.000		0.000		0.000		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2342 METOC Data Assimilation and Modeling						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.295	12.107		7.142		7.927		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

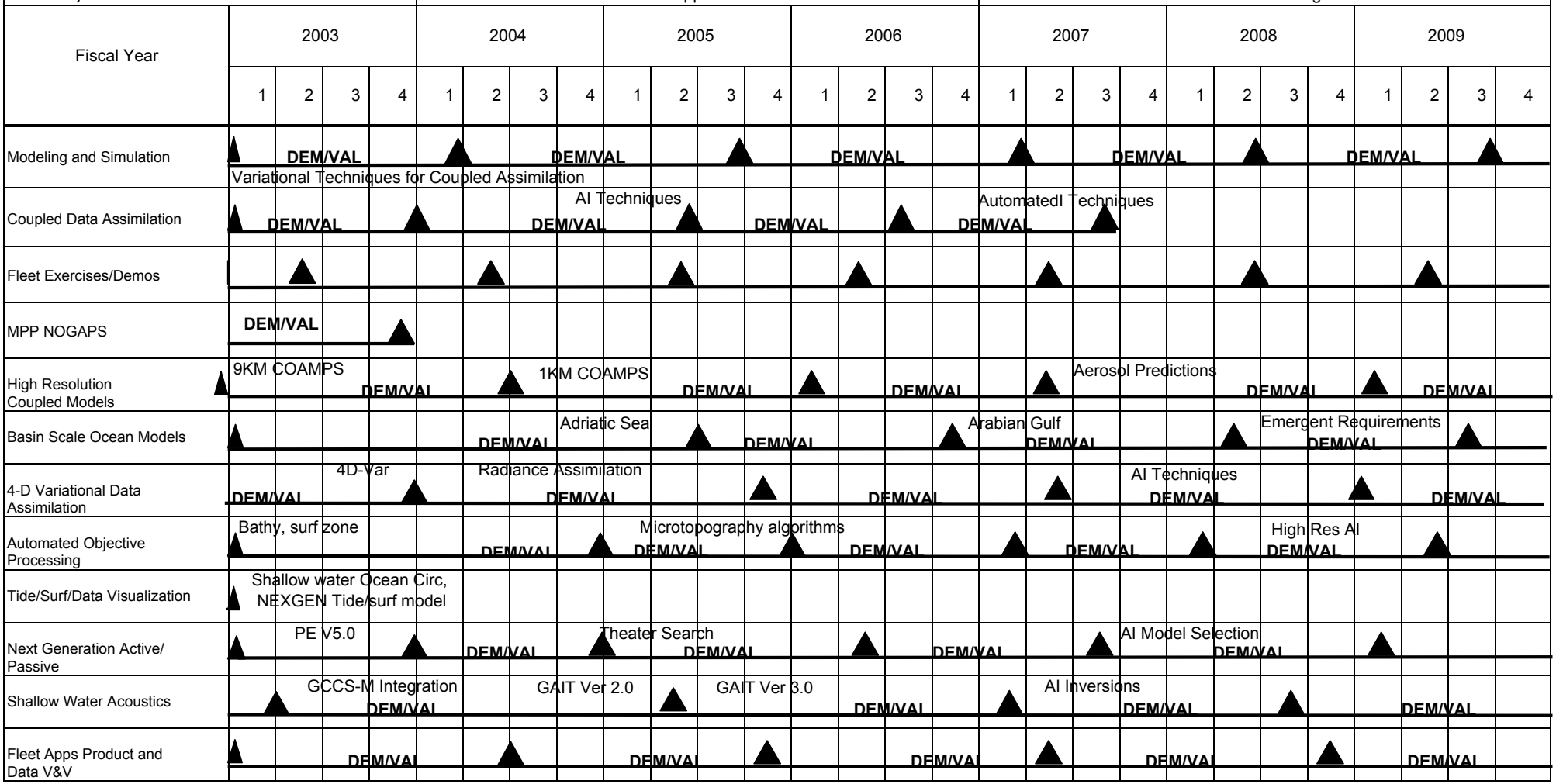
CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: PE 0603207N Air/Ocean Tactical Applications

PROJECT NUMBER AND NAME: 2342 METOC Data Assimilation and Modeling



R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2342 METOC Data Assimilation and Modeling			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Modeling and Simulation		1Q	3Q		1Q	2Q	3Q
Coupled Data Assimilation	4Q		2Q	3Q	3Q		
Fleet Exercises/Demonstrations	2Q	2Q	2Q	2Q	2Q	2Q	2Q
MPP NOGAPS	4Q						
High-Resolution Coupled Models		2Q		1Q	2Q		1Q
Basin Scale Ocean Models			2Q	4Q		2Q	3Q
4D-VAR Data Assimilation	4Q		4Q		2Q		1Q
Automated Objective Processing		4Q	4Q		1Q	1Q	2Q
Tide/Surf/Data Visualization							
NEXGEN Active and Passive Acoustic Models	4Q	4Q		2Q	3Q		1Q
Shallow Water Acoustics	1Q		2Q		1Q	3Q	
Fleet Applications and Data V&V		2Q	4Q		2Q	4Q	

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: February 2004			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications					PROJECT NUMBER AND NAME 2343 Tactical METOC Applications					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**0.000**		**7.820**	**6.477**	**6.695**	**6.998**	**8.635**	**8.811**	**8.991**	**Continuing**	**Continuing**
RDT&E Articles Qty											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The METOC Data Applications Project provides future operational effects decision aid capabilities for Navy and Marine Corps warfighters in the context of Joint Operations. This project identifies and transitions state-of-the-art decision support software technologies from the Government's and Commercial Industry's technology base and then demonstrates and validates these capabilities before fielding. These future software decision support tools are intended to provide platform, sensor, communications, and weapon systems performance assessments for warfighters in terms of their littoral and deep-strike battlespace environments. These assessments allow mission planners and warfighters, from the unit to theater level, to optimize their sensor employment on airborne, surface, and subsurface platforms in support of all Naval Composite Warfare mission areas including Undersea Warfare (USW), Anti-Submarine Warfare (ASW), Mine Warfare (MIW), Amphibious Warfare (AMW), Anti-Surface Warfare (ASUW), Anti-Air Warfare (AAW), Strike Warfare (STW), and Special Warfare. Performance assessments leading to improvements in operational and tactical control are conducted through a two-tiered approach: 1) METOC Decision Aids (MDAs); and, 2) Opeational Effects Decision Aids (OEDAs). MDAs consist of a series of analysis tools which characterize the physical environment conditions of the battlespace based on the best set of physical environment data available at the time (i.e., some combination of historical and/or real-time (or near real-time) in-situ data. OEDAs then use the MDA information by fusing it with relevant, often-classified sensor and target data to predict how own-force weapons and sensor systems will perform and hostile targets, Performance results are displayed in tabular and graphic formats for use by mission planners and combat/weapon system operators to develop ASW and MIW search and localization plans, USW/AAW/ASUW screens, STW profiles, AMW ingress and egress points, and for other warfare considerations. MDAs and OEDAs typically use data derived from sensors developed in Project X2341 (METOC Data Acquisition) and assimilated by software produced by Project X2342 (METOC Data Assimilation and Modeling). MDAs and OEDAs also use data obtained through direct interfaces to Navy combat systems. A current emphasis area of the project is the development of new combat system and mine warfare performance prediction and MDA/OEDA capabilities required to characterize and/or predict sensor and weapons system performance in the highly complex littoral environments in support of regional conflict scenarios. It addresses multi-warfare areas, particularly Mine Warfare, shallow water ASW, and missile and air defense/strike capabilities. □

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2343 Tactical METOC Applications

(U) B. Accomplishments/Planned Program

EM/EO Decision Aids	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.334	1.015	1.180
RDT&E Articles Quantity			

FY03 - Continued development of an advanced electromagnetic propagation (AREPS) model incorporating artificial intelligence techniques. Delivered NITES II Java version of AREPS. Continued development of an advanced electro-optical decision aid.
FY04 - Complete development of an advanced electro-optical decision aid incorporating artificial intelligence techniques. Deliver the Target Acquisition Weather Software (TAWS) V4.0. Continue to implement new sensor data and backgrounds consistent with USN and USMC mission. Continue development of next generation electromagnetic and electro-optical (EM/EO) performance prediction systems and applications.
FY05 - Complete development of (TAWS) and deliver V5.0 including new sensor data and backgrounds consistent with USN and USMC mission. Continue development of next generation electromagnetic and electro-optical (EM/EO) performance prediction systems and applications.

Mine Littoral Warfare TDAs	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	2.416	2.168	1.882
RDT&E Articles Quantity			

FY03- Continued to incorporate prototype Mine Warfare tactical decision aids in baseline surface ship, air and submarine performance prediction systems. Delivered the Mine Environmental Decision Aids Library (MEDAL) Build 9.
FY04 - Complete the incorporation of prototype Mine Warfare tactical decision aids in baseline surface ship, air and submarine performance prediction systems. Complete integration of MEDAL/TEDS integration. Continue development to incorporate additional mine littoral warfare decision aids in applicable performance prediction systems.
FY05 - Continue development to incorporate additional mine littoral warfare decision aids in applicable performance prediction systems. Deliver MEDAL Build 10.

TDA COTS Visualization	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.795	1.356	1.562
RDT&E Articles Quantity			

FY03 - Continued to apply advanced COTS visualization techniques to facilitate operator understanding of complex littoral environmental effects on sensor performance and integrated into appropriate platform ADMs. Performed at-sea evaluation of new capabilities. Delivered technical reports.
FY04 - Complete the application of advanced COTS visualization techniques to facilitate operator understanding of complex littoral environmental effects on sensor performance. Continue development of multi-dimensional TDA COTS visualization techniques and integrate into appropriate platform ADMs. Deliver prototypeTactical Tomahawk Weapon Control System METOC Interface. Perform at-sea evaluation of new capabilities. Deliver technical reports.
FY05 - Continue development of multi-dimensional TDA COTS visualization techniques and integrate into appropriate platform ADMs. Deliver 4d-Vis prototype. Deliver technical reports.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2343 Tactical METOC Applications

(U) B. Accomplishments/Planned Program

Platform Vulnerability	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.125	0.988	1.000
RDT&E Articles Quantity			

FY03- Delivered platform vulnerability assessment TDA V1.0 into surface ship, submarine and air ADMs to perform vulnerability assessment for acoustic and non-acoustic sensors and weapons. Evaluated functionality during at-sea tests. Delivered Technical reports. Continued spiral development of TDA.
FY04 - Deliver platform vulnerability assessment TDA V2.0 into surface ship, submarine and air ADMs to perform vulnerability assessment for acoustic and non-acoustic sensors and weapons. Evaluate functionality during at-sea tests. Deliver Technical reports. Continue spiral development of TDA.
FY05 - Deliver platform vulnerability assessment TDA V3.0 into surface ship, submarine and air ADMs to perform vulnerability assessment for acoustic and non-acoustic sensors and weapons. Evaluate functionality during at-sea tests. Deliver Technical reports. Continue spiral development of TDA.

Sensor Interface Capabilities	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.150	0.950	1.071
RDT&E Articles Quantity			

FY03 - Continued to incorporate additional environmental sensor interface capabilities to allow for real time monitoring and measurement of key environmental parameters in support of the Oceanographer of the Navy's Battlespace METOC Data Acquisition, Assimilation and Applications strategy. Implemented in the platform ADMs and evaluate at-sea. Delivered NITES II Build 2.
FY04 - Continue development of environmental sensor interface capabilities. Perform Preliminary Design Review (PDR) and Critical Design Review (CDR) for Build 2.5.
FY05 - Continue development of environmental sensor interface capabilities. Deliver Build 3.0. Evaluate functionality during at-sea tests. Deliver Technical reports. □

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2343 Tactical METOC Applications

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget	8.068	6.553	7.12
FY05 Current BES/President's Budget	7.82	6.477	6.695
Total Adjustments	-0.248	-0.076	-0.425
Summary of Adjustments			
SBIR	-0.165		
SPAWAR Service Cost Center Adjustment		-0.003	-0.003
NWCF Rates - SPAWAR SSC Rates			-0.003
Section 8094: Management Improvements		-0.017	
Sec. 8126 Efficiencies/Revised Econ Assumptions		-0.056	
FY 2003 Update	-0.083		
WCF - R&D - NAWC			-0.001
WCF - R&D - NRL			-0.001
Rates - NSWC			0.004
Rates - NRL			0.001
JBMC2			-0.4
Inflation			-0.018
Non purchase inflation			-0.004
Subtotal	-0.248	-0.076	-0.425

(U) Schedule:

Not applicable.

(U) Technical:

Not applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2343 Tactical METOC Applications

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

RELATED RDT&E: PE 0604218N (Air/Ocean Equipment Engineering). TESS/NITES will incorporate METOC data applications.

(U) E. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies are to support the METOC Data Applications project to continue the development of state-of-the-art software capabilities that provide sensor, communication, and weapon system performance assessments across the full spectrum of open ocean and littoral operating environments, meteorology and oceanography , all with management oversight by SPAWAR Headquarters PMW 150.

(U) F. MAJOR PERFORMERS:

N/A

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2343 Tactical METOC Applications						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	NUWC		0.000	N/A	0.000	N/A	0.000	N/A		0.000	
	WX	SSC SD		0.600	N/A	0.320	N/A	0.335	N/A	CONT	CONT	
	WX	NRL		0.412	N/A	0.270	N/A	0.285	N/A	CONT	CONT	
	CP	NAVSEA		5.955	N/A	5.188	N/A	5.811	N/A	CONT	CONT	
	CP	LOCKHEAD		0.000	N/A	0.000	N/A	0.000	N/A		0.000	
	N/A	MISC		0.853	N/A	0.699	N/A	0.264	N/A	CONT	CONT	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			0.000	7.820		6.477		6.695		0.000	20.992	

Remarks:

	CP	IPD	0.595	0.000	N/A	0.000	N/A	0.000	N/A	CONT	#VALUE!	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.595	0.000		0.000		0.000		CONT	CONT	

Remarks:

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2343 Tactical METOC Applications							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.595	7.820		6.477		6.695		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R4, Schedule Profile — DATE: **February 2004**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: PE 0603207N Air/Ocean Tactical Applications

PROJECT NUMBER AND NAME: 2343 Tactical METOC Applications

Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
EM/EO Decision Aids	▲	AREPS DEM/VAL		▲		TAWS DEM/VAL		▲		Adv EM/EO using AI DEM/VAL			▲					Next Gen EM/EO Adv EM/EO using AI				DEM/VAL					▲	
Mine Warfare TDAs	DEM/VAL				▲	MEDAL Upgrades DEM/VAL			▲	MEDAL Upgrades DEM/VAL			▲					NEXGEN MIW TDA DEM/VAL			▲		DEM/VAL		▲			
TDA COTS Visualization	▲	4D VIS DEM/VAL			▲		Advanced VIS DEM/VAL		▲				▲	DEM/VAL				Advanced Interactive Holographic Techniques DEM/VAL			▲		DEM/VAL		▲			
Platform Vulnerability		Acoustic Vul			DEM/VAL			▲		Non-Acoustic Vul			DEM/VAL			▲		Multi-Ship Vul DEM/VAL				▲		Remote Sensing			▲	
Sensor Interface Capabilities			DEM/VAL		▲	Conventional Measurements							DEM/VAL				▲	Remote Sensing/Data Monitoring						DEM/VAL		▲		

R-1 SHOPPING LIST - Item No. 30

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail				DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2343 Tactical METOC Applications			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
EM/EO Decision Aids	4Q	4Q		1Q			3Q
Mine/Littoral Warfare TDAs		1Q	2Q	3Q		1Q	2Q
TDA COTS Visualization	1Q	3Q	4Q	4Q		2Q	3Q
Platform Vulnerability		4Q		3Q		2Q	4Q
Sensor Interface Capabilities		1Q			1Q		3Q

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification								DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications					PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**0.000**		**1.399**	**1.148**	**1.261**	**1.299**	**1.573**	**0.506**	**0.296**	**Continuing**	**Continuing**
RDT&E Articles Qty											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The major thrust of the Precise Timing and Astrometry Project is to provide future capabilities that directly support the mission of the U.S. Naval Observatory (USNO). These future mission capabilities are intended to: 1) address DoD requirements for needed increases in positioning accuracies of modern weapons systems by the determination of star positions (including objects at other than optical wavelengths) and the stellar inertial reference system (to which all navigation, guidance, and positioning systems are ultimately referred); 2) develop techniques for the prediction of the Earth's instantaneous orientation with respect to the stellar inertial reference system; 3) oversee the determination and dissemination of precise time information using the Navy/DoD Master Clock System and precise time distribution networks; and, 4) develop advanced electronic light detectors and interferometry in the optical and infrared wavelength regions for very precise determination of the positions of both faint and bright stars, satellite tracking, and space debris studies. DoD Instruction 5000.2 assigns to the Navy the responsibility for coordinating Precise Time and Time Interval (PTTI) requirements and for maintaining a PTTI reference standard (astronomical and atomic) for use by all DoD Services, Federal agencies, and related scientific laboratories. The Navy is also responsible for providing astronomical data for navigation, positioning, and guidance, including space. Some operational and many emerging requirements surpass current support capabilities. In response to these DoD requirements, this project transitions Research (6.1) and Exploratory Development (6.2) efforts, as well as developments in the civilian sector, into the operational capabilities of the USNO.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2344 Precise Timing and Astrometry

(U) B. Accomplishments/Planned Program

Time Transfer	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.390	0.292	0.355
RDT&E Articles Quantity			

FY03 - Continued developments of next-generation time transfer capabilities.
FY04 - Complete developments of next-generation time transfer capabilities. Install upgraded capability. Continue spiral developments of time transfer techniques incorporating neural networks to improve accuracy.
FY05 - Continue developments of time transfer techniques incorporating neural networks to improve accuracy. Deliver technical reports.

Earth Orientation	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.430	0.338	0.375
RDT&E Articles Quantity			

FY03 - Continued VLBI/GPS demonstrations for earth orientation parameters. Delivered operational products to improve earth orientation database. Continued spiral developments of next-generation earth orientation techniques.
FY04 - Continue VLBI/GPS demonstrations for earth orientation parameters. Deliver improvements for GPS upgrades.
FY05 - Continue developments of next-generation earth orientation techniques. Deliver technical reports.

Master Clock	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	0.579	0.518	0.531
RDT&E Articles Quantity			

FY03 - Continued exploitation of emergent Master Clock technologies.
FY04 - Continue exploitation of emergent Master Clock technologies. Deliver and install upgraded Master Clock.
FY05 - Continue exploitation of emergent Master Clock technologies. Perform initial testing of next generation Master Clock.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2344 Precise Timing and Astrometry

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget	1.443	1.161	1.265
FY05 President's Budget	1.399	1.148	1.261
Total Adjustments	-0.044	-0.013	-0.004
Summary of Adjustments			
FY03_SBIR	-0.024	0	0
Section 8094: Management Improvements	0	-0.003	0
Sec. 8126 Efficiencies/Revised Econ Assumptions	0	-0.010	0
FY 2003 Update	-0.020		
Inflation	0	0	-0.003
Non purchase inflation	0	0	-0.001
Subtotal	-0.044	-0.013	-0.004

(U) Schedule:

Not applicable.

(U) Technical:

Not applicable.

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	2344 Precise Timing and Astrometry

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

Not applicable.

(U) E. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies are to support the the Precise Timing and Astrometry Project in direct support of the U.S. Naval Observatory (USNO) in: 1) addressing DoD requirements for needed increases in positioning accuracies of modern weapons systems by the determination of star positions and the stellar inertial reference system ; 2) developing techniques for the prediction of the Earth's instantaneous orientation with respect to the stellar inertial reference system; 3) overseeing the determination and dissemination of precise time information using the Navy/DoD Master Clock System and precise time distribution networks; and, 4) developing advanced electronic light detectors and interferometry in the optical and infrared wavelength regions for very precise determination of the positions of both faint and bright stars, satellite tracking, and space debris studies, all with management oversight by SPAWAR Headquarters.

(U) F. MAJOR PERFORMERS:

N/A

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	Naval Observatory		1.399	N/A	1.148	N/A	1.261	N/A	CONT	CONT	
	N/A	MISC		0.000	N/A	0.000	N/A	0.000	N/A		0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Software Development			0.000	1.399		1.148		1.261		0.000	3.808	
Remarks:												
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**			PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
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											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.000	1.399		1.148		1.261		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																												DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**					PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications												PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry												
Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Time Transfer		DEM/VAL			Neural Networks					DEM/VAL							Advanced Time Transfer					DEM/VAL						
Earth Orientation	VLBI/GPS demo					DEM/VAL			Full-Sky Astrometric Mapping Explorer										DEM/VAL									
Master Clock			Sigma Tau-model hydrogen masters							DEM/VAL			Mercury Ion Clocks					DEM/VAL					Pulsar Profile Technology					

R-1 SHOPPING LIST - Item No. 30

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2004**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 2344 Precise Timing and Astrometry			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Time Transfer	4Q		4Q				2Q
Earth Orientation		4Q				2Q	
Master Clock	2Q			1Q		1Q	

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification										DATE: February 2004	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications					PROJECT NUMBER AND NAME 9168 Prototype Regional Forecast Hub					
COST ($ in Millions)	Prior Years Cost		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to Complete	Total Program
Project Cost	**0.000**		**1.190**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**1.190**
RDT&E Articles Qty											**0**

(U) A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

A Congressional plus up for Prototype Regional Forecast (PRF) Hub was provided for FY03. The thrust of this project is to develop, integrate and demonstrate a prototype Prototype Regional Forecast (PRF) Hub. Currently there is no Regional Forecast Hub for METOC modeling in support of the CNMOC Centers of Excellence. This system will provide the tools for substantially reducing the time to develop, prototype, test, and validate METOC models, and will support collaboration between modelers and users. The PRF will integrate and demonstrate new technologies and techniques to allow the Navy to establish more efficient forecasting hubs to respond to geographically distributed operational needs of the Department of the Navy including air and water born contaminants. The PRF will:

· Provide Navy's operational personnel and forecasters at dispersed locations with Web based access to regionally specific numerical forecasts of both the oceanographic and meteorological conditions.

· Incorporate computer models, high performance computing, including hardware, software and databases, and communications into a single architecture.

· Use advanced communications technology such as the NCSA Access Grid to allow forecasters and decision support personal to meet in a virtual room with collaborative access to the latest METOC conditions and forecasts.

· Integrate a suite of high-resolution ocean and atmospheric forecast and contaminant dispersion/ transport models. The SRC will require the development and incorporation of an adaptive refinement ocean model with chemical tracking capabilities.

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	9168 Prototype Regional Forecast Hub

(U) B. Accomplishments/Planned Program

Prototype Regional Forecast Hub	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost	1.190		
RDT&E Articles Quantity			

FY03 - Developed, integrated and demonstrated prototype PRF Hub.

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

	FY 03	FY 04	FY 05
Accomplishments/Effort/Subtotal Cost			
RDT&E Articles Quantity			

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	9168 Prototype Regional Forecast Hub

(U) C. PROGRAM CHANGE SUMMARY:

(U) Funding:	FY 2003	FY 2004	FY 2005
FY04 President's Budget	1.223	0.000	0.000
FY05 President's Budget	1.190	0.000	0.000
Total Adjustments	(0.033)	0.000	0.000
Summary of Adjustments			
Business Process Reform (SEC.8100)	(0.005)	0.000	0.000
Economic Assumptions (SEC.8135)	(0.007)	0.000	0.000
IT Cost Growth (SEC.8109)	(0.002)	0.000	0.000
Prototype Regional Forecast Hub	0.027	0.000	0.000
Inflation Savings	(0.013)	0.000	0.000
FY03_SBIR_5-May-03	(0.033)	0.000	0.000
Subtotal	(0.033)	0.000	0.000

(U) Schedule:

Not applicable.

(U) Technical:

Not applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	PE 0603207N Air/Ocean Tactical Applications	9168 Prototype Regional Forecast Hub

(U) D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name

Not applicable.

(U) E. ACQUISITION STRATEGY:

Acquisition, management and contracting strategies are to support the Prototype Regional Forecast Hub. The PRF Hub will integrate and demonstrate new technologies and techniques to allow the Navy to establish more efficient forecasting hubs to respond to geographically distributed operational needs of the Department of the Navy including air and water born contaminants.

(U) F. MAJOR PERFORMERS:

N/A

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications				PROJECT NUMBER AND NAME 9168 Prototype Regional Forecast Hub						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Software Development	WX	NAVOCEANO	0.000	1.190	N/A	0.000	N/A	0.000	N/A	0.000	1.223	
	N/A	MISC	0.000	0.000	N/A	0.000	N/A	0.000	N/A		0.000	
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											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Software Development			0.000	1.190		0.000		0.000		0.000	1.190	
Remarks:												
											0.000	
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											0.000	
Subtotal Support			0.000	0.000		0.000		0.000		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)								DATE: **February 2004**				
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 9168 Prototype Regional Forecast Hub							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
											0.000	
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											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
											0.000	
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											0.000	
											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:												
Total Cost			0.000	1.190		0.000		0.000		CONT	CONT	
Remarks:												

R-1 SHOPPING LIST - Item No. 30

CLASSIFICATION:

EXHIBIT R4, Schedule Profile																												DATE: **February 2004**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**					PROGRAM ELEMENT NUMBER AND NAME PE 0603207N Air/Ocean Tactical Applications												PROJECT NUMBER AND NAME 9168 Prototype Regional Forecast Hub												
Fiscal Year	2003				2004				2005				2006				2007				2008				2009			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Prototype Regional Forecast Hub	**DEMVAL**																											

R-1 SHOPPING LIST - Item No. 30

* Not required for Budget Activities 1, 2, 3, and 6

CLASSIFICATION:

Exhibit R-4a, Schedule Detail				DATE: **February 2004**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT PE 0603207N Air/Ocean Tactical Applications			PROJECT NUMBER AND NAME 9168 Prototype Regional Forecast Hub			
Schedule Profile	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Prototype Regional Forecast Hub	4Q						